Department of the Army
Headquarters. United States Army
Training and Doctrine Command
Fort Monroe, Virginia 23651-5000

21 August 1992

Facilities Engineering

MAINTENANCE AND REPAIR (MAR) PROJECT MANAGEMENT (RCS ATBO-297 (R3))

Summary. This regulation is completely revised. It provides guidance on developing and maintaining the MAR Project Management and priority System. It also provides specific guidance required to validate and score MAR projects.

Applicability. It applies to all TRADOC Installations' Directorate of Engineering and Housing (DEH), Directorate of Installation Support (DIS), or Directorate of Public Works (DPW) funded from Operations & Maintenance, Army (OMA) or Army Family Housing (AFH) resources.

Supplementation. Local supplementation of this regulation is prohibited, except upon approval by Commander, TRADOC, ATTN: ATBO-GPR, Fort Monroe, VA 23651-5000.

Forms. "R" forms at the back of this regulation are for local reproduction. Have them printed through your forms management officer.

Suggested improvements. Send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) through channels to Commander, TRADOC, ATTN: ATBO-GPR, Fort Monroe, VA 23651-5000.

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*This regulation supersedes TRADOC Reg 420-3, 1 June 1988.

Chapter 1
Introduction

1-1. Purpose. This regulation establishes a system for-

a. Capturing MAR project requirements and accomplishments with cost estimates greater than or equal to $10,000 for the effective management of DEH/DIS/DPW operations.

b. Preparing master files of MAR projects to include-

(1) Financed and unfinanced backlogged MAR (BMAR) projects.

(2) Financed and unfinanced annual recurring requirement MAR (ARRMAR) projects.

(3) Financed and unfinanced cost of ownership MAR (COOMAR) projects.

(4) Financed and unfinanced deferred MAR (DMAR) projects.

(5) Nominated and approved projects selected for subject to the availability of funds (SAF) programs.

(6) Projects selected for "special" resourcing.

c. Updating project status in the MAR Project .Management and Priority System.

d. Retaining records of current fiscal year (CFY) project additions, deletions, and obligations.

e. Maintaining validation status. Projects will be validated to-

(1) Ensure proper classification of work.

(2) Determine that the projects are justified and represent valid requirements.

(3) Ensure the proposed method of accomplishment is the most effective method.

f. Scoring of projects to reflect their degree of need.

g. Capturing incidental improvement projects for family housing.

1-2. References. Appendix A contains the required and related publications.

1-3. Explanation of abbreviations and terms. The glossary contains abbreviations and explanation of special terms used in this regulation.

1-4. Responsibilities.

a. Deputy Chief of Staff for Base Operations Support (DCSBOS), Office of the Engineers (OENGR), Engineer Plans and Programing Management Division (EPPMD) and Facilities Engineering Support Division (FESD) will-

(1) Provide financial management support of the MAR Program.

(2) Serve as the point of contact for MAR data base administration. Include MAR system back-up/restoral, troubleshooting, assignment of user ID's, system improvements, and obligation approvals.

(3) Control access to the system on a quarterly basis to establish a Command BMAR/DMAR position.

(4) Provide overall support for MAR project validation, scoring, and technical guidance.

(5) Serve as the point of contact for work classification and technical requirements of MAR projects.

c. TRADOC installations, Director, DEH/DIS/DPW will-

(1) Maintain project files in accordance with (IAW) AR 420-17 and AR 25-400-2. Include original validation documentation in project files.

(2) Input and maintain the information in the MAR Project Management and Priority System database. Include all projects with an estimated cost of $10,000 or greater. Information reported will represent the most current status of projects.

(3) Ensure that input to the MAR System agrees with other generated financial reports and the Resource Management Plan. Coordinate MAR system reporting with financial managers, engineer resource managers, and engineer plans and services. Furnish data for any subinstallation financed from OMA and AFH.

(4) Validate and score all MAR projects with an estimated cost of $50,000 or more regardless of execution time frame. Projects estimated at less than $50,000 do not require validation.

1-5. Administration.

a. TRADOC installations, Director, DEH/DIS/DPW. Not later than the 10th workday after the end of each quarter, ensure all information reported in the MAR System represents the most current status of projects (RCS ATBO-297). Send a message via the system informing the Data Base Administrator (DBA) that quarterly update is complete. For the fourth quarter update, state in the message that the Director, DEH/DIS/DPW has reviewed and approved the final update for the CFY.

b. TRADOC. The Director, OENGR will periodically review information input to the MAR database, to include processing obligations awaiting approval and performing various analyses on the reported data. Each quarter, access to the MAR database is restricted to establish a quarterly BMAR/DMAR position. During this time, installations will not have the capability to update MAR project information, but will have access to running reports and querying the database using Intellect.

Chapter 2
MAR Project Management

Section I
MAR Project Update

2-1. Annual recurring requirements (ARR). To

understand the purpose of the MAR system and subsequent updating requirements, it is necessary to understand the underling philosophy of OMA ARR or AFH COO. To develop your installations ARR/COO for the maintenance and repair account, consider all work required, excluding all BMAR or DMAR projects. During a given fiscal year (FY), this level of effort should keep facilities in serviceable condition and should prevent premature deterioration of the physical plant. The ARR/COO consists of all scheduled work such as painting, roofing, preventive maintenance, and cyclical maintenance such as cleaning boilers and cutting the grass. Once developed, installations can adjust their ARR/COO for unforeseen emergencies and urgent repairs. Development of the ARR/COO correlates directly with the development of an installation's annual work plan. However, when developing the ARR/COO for a given FY, initially exclude BMAR/DMAR projects (see table 2-1 below).

Table 2-1
Developing ARR

Fiscal Year-XX	Priority	$
Services orders	1	10,000
Preventive maintenance	2	20,000
Grass cutting	3	2,000
Cleaning boilers	4	2,000
Replace heating system	5	11,000
Replace windows	6	15,000
Rewire range	7	21,000
Replace condensate lines	8	20,000
Rewire building 2	9	14,000
Total Installation ARR (excluding BMAR)		115,000

2-2. Funded ARR/COO. After determining the requirements, compare them to the current level of funding provided by this headquarters. For example, refer to table 2-1, and suppose the funding level provided by the headquarters is $60,000. With this ARR funding level, an installation could support their top 6 priorities which include two major MAR projects. The MAR system captures only ARRMAR/COOMAR projects of a non-recurring nature that have an estimated cost of $10,000 or greater. Therefore, add the two funded projects (priority 5 and 6) to the MAR system and code them for current year execution. Include projects in table 2-1 that fall below the funded line, but code them as potential BMAR/DMAR growth. The program code for these projects should include the current FY and reason code 5, indicating insufficient ARR/COO funding.

2-3. Substituting BMAR/DMAR for funded ARRMAR/COOMAR projects. It is possible that a BMAR/DMAR project maybe considered a higher priority for execution than a funded ARRMAR/COOMAR project. Refer again to table 2-1. Suppose a BMAR project to "Replace vehicle bridge" is designated as critical for execution during this year. Estimated cost of this BMAR project is $11,000. If there were no BMAR reduction dollars distributed, then substitute this project for a funded project. Identify a funded ARRMAR project of like value that is deferrable such as the one to "Replace heating system". The BMAR project to "Replace vehicle bridge" then becomes a current year execution project and the ARRMAR project to replace heating system becomes potential BMAR. The program code for this potential BMAR project would include the current FY and reason code 3, indicating deferred to accomplish a higher priority BMAR project.

2-4. Updating 2-year MAR program. At a minimum, the MAR system is capable of capturing a 2-year ARRMAR program, to include both funded and unfunded projects. It is imperative for installations to maintain this 2-year program since it serves as the basis for developing the Command's initial SAF program. It is also used to identify an installation's project funding desires and capabilities. The TRADOC MAR Project Management and Priority System End Users' Manual contains specific instructions for accessing and updating the MAR system. However, the following outlines several critical fields in the MAR system that require frequent updating in order to maintain the 2-year program.

a. Army management structure (AMS) code. Use this code to capture costs for structures or facilities. The MAR system captures only MAR projects. However, AFH also captures incidental improvement projects. Assume the 815794.K for OMA projects and enter the digit that follows the .K plus three zeros, e.g., 1000, 2000, 3000, etc. Assume the 192 for AFH projects and enter the 3 digits following the 192 then add two zeros. AFH incidental improvement projects must begin with a 3, e.g., 34100. (For projects with multiple AMS codes, use the one with the highest dollar value.)

b. Construction category codes. The category code field accounts for all Army owned facilities. AR 415-28 contains a full description of construction category codes. The category code plays a valuable role in determining . the score of MAR projects. Assign points based on the type of facility. It is vital that installations obtain the correct five digit category code from AR 415-28. Table 2-2 lists the AMS codes and their acceptable, three-digit construction category codes. In addition, table 2-3 stratifies the category codes into investment categories. For projects pertaining to more than one type of facility, use the category code of the predominant facility.

Table 2-2
AMS Codes and Construction Category Codes

	AMS Code	Construction Category Codes
1000	Operation/Training	131, 133, 134, 137, 138, 141, 142, 143, 148, 149, 151, 152, 153, 154, 155, 156, 159, 161, 162, 163, 164, 165, 169, 171, 179
2000	Maintenance/production/ Research, Development, Test & Evaluation,	211, 212, 213, 214, 215, 216, 217, 218, 219, 221, 222, 223, 224, 225, 226, 227, 228, 229, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 371, 390
3000	Supply/Storage	421, 422, 423, 424, 425, 431, 432, 441, 442, 451, 452
4000	Medical	510, 530, 540, 550
5000	Administrative	610, 620, 690
6000	Troop Housing	721, 722, 723, 724, 725
7000	Community	730, 740, 750, 760- Commissaries see AMS 9000
8000	Utilities/Other	111, 112, 113, 116, 121, 122, 123, 124, 125, 126, 132, 135, 136, 411, 412, 811, 812, 813, 821, 822, 823, 824, 826, 827, 831, 832, 833, 841, 842, 843, 844, 845, 851, 852, 860, 871, 872, 880, 890, 911, 912, 913, 914, 921, 922, 923, 932
9000	Commissaries	74021

Table 2-3
Investment Category Codes and Construction Category Codes.

	Investment Category	Construction Category Codes
01	Aviation Operational Facility	111, 112, 113, 116, 121, 133, 134, 136, 141, 149
02	Communication Operational Facility	131, 132, 135
03	Waterfront Operational Facility	122, 151, 152, 153, 154, 155, 156, 159, 161, 162, 163, 164, 165, 169
04	Other Operational Facility	123, 124, 125, 126, 137, 138, 142, 143, 148
05	Training Facility	171, 179

Table 2-3
Investment Category Codes and Construction Category Codes - Continued

	Investment Category	Construction Category Codes
06	Aviation Maintenance Facility	211, 221
07	Shipyard Maintenance Facility	223, 213
08	Other Maint/Production Facility	212, 214, 215, 216, 217, 218, 219, 222, 224, 225, 226, 227, 228, 229
09	RDT&E Facility	310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 371, 390
10	POL Supply/Storage Facility	411, 412
11	Ammo Supply/Storage Facility	421, 422, 423, 424, 425
12	Other Supply/Storage Facility	431, 432, 441, 442, 451, 452
13	Medical/Dental Facility	510, 530, 540 550
14	Administrative Facility	610, 620, 690
15	Troop Housing/Messing Facility	721, 722, 723, 724, 725
16	Other Personnel Spt Svc Facility	730, 740, 750, 760
17	Utilities Facility	811, 812, 813, 821, 822, 823, 824, 826, 827, 831, 832, 833, 841, 842, 843, 844, 845, 880, 890
18	Real Estate/Ground Structure	851, 852, 860, 871, 872, 912, 923,931, 932, 933, 939
19	Other Facility Costs	911, 913, 914, 921, 922, 934
20	Family Housing Facility	711,712,713,714

There are several cost fields associated with the MAR system. Each captures a separate aspect of the MAR project. They are as follows:

(1) Estimated cost. Represents the total cost of the project's phase to include the contractual amount, contingencies, and supervision, inspection and administration (SIA). Design is not included. Adjust the estimated cost field when the project experiences a change in scope that results in a cost change. A fully obligated phase will cause the system to update the estimated cost to agree with the total obligations. Obligations made against the project which exceed the estimated cost will require an adjustment to the estimated cost field covering the obligation amount.

(2) Remaining estimated cost. The remaining estimated cost field is the unobligated portion of the estimated coat. The system computes this field automatically by subtracting the total obligations from the estimated cost

field.

(3) Execution cost. This is the portion of the project's estimated cost that has been identified for execution in a given year. This field is an estimate of programmed execution. It need not agree with actual obligations incurred.

(4) SAF cost. This cost includes only the contractual portion of the project's estimate It is only required when a project is nominated or approved for the command's SAP Program.

(5) Obligation amount. This field captures the amount being obligated against a project. A related field, "obligation code", specifies the obligation as a partial or a total obligation. Obligations reported are noncumulative. After the installation enters them and TRADOC approves them, the system adds the obligations to the cumulative and total obligations counter. A special screen is available to review obligations reported against a project regardless of the approval status. Use this screen to prevent the reporting of duplicate obligations.

(6) Cumulative obligations. This field captures all TRADOC approved obligations made during the CFY. To avoid duplicates, review the obligation screen for outstanding obligations prior to reporting new obligations.

(7) Total obligations. This field captures all approved obligations reported against a project's phase for the life of the project. If obligations for a phase crosses FY's, the total obligations field would show the approved total amount obligated.

(8) Validation amount. This cost field reflects the validated project's total cost. The amount validated applies to the sum of the estimated cost for all phases of a project. Revalidation is necessary if the project's estimated cost increases 25 percent above the validation amount. "REVAL" will show up in the "FE Comment" field if the project requires revalidation.

d. Installation priority. The priority assigned by the installation has a major impact on the TRADOC score. The closer the priority is to 1.00, the higher the TRADOC score. The Director, DEH/DIS/DPW will arrange all projects, regardless of the year, in desired priority starting at number 1.00. There are six spaces allocated for prioritizing, which includes a decimal point for subdivision. Adding a number after the decimal prevents a major renumbering of priorities. For an example refer to figure 2-1. To insert a project between two old priorities make the new project's priority 124.10. The system will automatically renumber the priorities each quarter making the new priorities 124.00, 125.00, and 126.00. All new projects added to the MAR system will automatically receive a priority of 800.00. This assures visibility of the TRADOC score. Once the system reprioritizes, these projects are then the lowest priorities. It is up to the Director, DEH/DIS/DPW to change the priorities during the update period.

OLD PRIORITY	NEW PROJECT PRIORITY
124.00	124.10
125.00	

Figure 2-1. Adding a new project priority between two old priorities.

e. Obligation code. Use this field to indicate a total or partial obligation reported against a project or to delete a project. Valid entries to this field include:

(1) P - This is a partial obligation and you expect other obligations.

(2) O - The obligation being reported will fully obligate the phase and you expect no other obligations against this project. Using an "O" in this field will drop the project from the MAR system at year-end. If you anticipate significant SIA ($50,000 or more), do not use the "O" obligation code.

(3) Deletion codes "1" through "7" - Identify a project for deletion from the system, providing there are no current year obligations. Table 2-4 contains the allowable deletion codes. Select the one which best relates to the reason for project deletion.

Table 2-4
Deletion Codes

CODE	REASON
1	Not valid.
2	Obligated with prior year funds, but not deleted before year-end.
3	Obligated or anticipate obligation with other than OMA or AFH direct funds; e.g., Military Construction, Army (MCA), nonappropriated funds (NAF), etc.
4	Accomplished by troop labor.
5	Duplicated or included in another project (identify the other project number in the remarks field).
6	Facility demolished or changed to an inactive status which does not require the work.
7	Not MAR, e.g., new work (applies to OMA).
8	Other.

f. Program code/reason. This combination is a one-to-six digit alphanumeric field that identifies the project as follows:

(1) First position. Indicates whether the project is ARRMAR or BMAR for real property maintenance activities (RPMA) and COOMAR or DMAR for AFH. All projects are initially added to the MAR system with an "A" for ARRMAR or "C" for COOMAR in this position. You cannot change this field. The system converts projects to BMAR or DMAR at current fiscal year-end, only if the second and sixth positions show the project as current year potential BMAR/DMAR growth. (See the glossary for the definition of potential BMA/DMAR.)

(2) Second/Third position. Numeric field indicating the year of planned execution. This field can be blank if scheduled execution is unknown. All projects scheduled for execution, identified as potential BMAR/DMAR growth, or identified for SAF must have a year in this position.

(3) Fourth position. This alpha field can be either "E", "N", "S" or blank. It identifies a project for execution (E) from within an installation's annual funding program; nominated for SAF (N); or approved by TRADOC for SAF (S). If filled in, the second and third position must have a year and the corresponding cost field must have a dollar value.

(4) Fifth position. An alpha field that captures special interest projects. TRADOC will send details as required. In addition, installations may use this field during the fourth quarter update to identify projects that are CFY potential BMAR/DMAR, yet planned for execution during the upcoming year. Code these projects as potential growth and include a "T" in this position; i.e., A**_ P*. Installations may also use this field to identify CFY potential BMAR/D MAR that is planned for execution in the upcoming year, however it remains unfinanced. Code these projects as potential BMAR/DMAR growth and include a "Q" in this position; i.e., A**_Q *.

(5) Reason Code. This numeric field is technically the sixth position of the program code, giving the rationale for unresourced ARRMAR/COOMAR projects. Use this field with ARRMAR/COOMAR projects that will become BMAR/DMAR if they remain unresourced. If filled in, the first position of the program code must be an "A" or "C" and the second and third position must have a year identified. The fourth position must be blank. Table 2-5 contains allowable entries for this position.

Table 2-5
Reasons for Potential Growth

CODE	REASON FOR POTENTIAL BMAR/DMAR GROWTH
1	Due to new or expanded mission.
2	Due to mobilization requirement.
3	Due to the need to accomplish a higher priority BMAR/DMAR requirement at the expense of deferring annual recurring funded MAR.
4	Due to having to absorb unfunded force integration requirements at the expense of deferring annual recurring funded MAR.
5	Due to insufficient MAR funding
6	Other - Explanation required.

g. Project Status. This code provides information on an installation's ability to execute a project should funds become available. Therefore, the code reported should reflect the moat current condition of the project and be updated as the status changes. Use this field in conjunction with the status date field which identifies the estimated design completion date. The following are acceptable project status codes:

(1) 400- Contract awarded and partial or total obligations reported. You must report an obligation during the CFY or simultaneously with the status code change to "400." During the fourth quarter update, change all projects executed during the year to a status code "400." The system automatically drops the installation priority of projects with status code "400."

(2) 350- Project being forwarded to district engineers for design or accomplishment; contract not yet awarded.

(3) 300- Requirements type contract awarded. Change the status code to "400" during the fourth quarter for the portion of the contract that was awarded. Create a new phase for any unobligated balance that remains for execution during the upcoming FY.

(4) 200- The local procurement office is processing the project for advertising and award. An in-house project is approved and directed for accomplishment.

(5) 150- Plans and specifications are complete as well as all necessary technical reviews. Project approval by higher headquarters is pending.

(6) 130- Plans, specifications and technical reviews are complete. Project has received all necessary approvals, waivers, and exceptions as required. Project is "on-the-shelf," ready for procurement processing or for in-house accomplishment.

(7) 120- Project being designed and accomplished under the Job Order Contracting (JOC) program. This includes JOC projects that are not currently designed but can go from design to award quickly.

(8) 100 - The design is underway. Use of this code requires input to the status date field which indicates when design will be complete. Format for the status date field is YEARMONTH (YYMM).

(9) 000- Project identified as an essential requirement. A project file has been established, the scope determined, and the preliminary estimates developed (see AR 420-17). Project design has not yet begun.

h. Type project. This field identifies the primary justification for accomplishing a project. The system uses this field to compute the project score. The same entries apply to OMA and AFH. Allowable entries in this field include-

(1) E - Energy conservation. Repaired or replaced equipment must result in an energy savings over the existing failed or failing equipment.

(2) H - Health. Hygiene and sanitary conditions. Repair or replaced component corrects a potential or actual health risk to persons coming in contact with the failed or failing condition.

(3) I - Environmental. Use this type project code only as a secondary justification for project scoring. Fund all projects having a primary justification of environmental from AMS code 815756 and do not identify in the MAR system.

(4) M - Mission/readiness. Project has an impact on readiness. Failed or failing component hampers the mission accomplishment or productivity of the activities function.

(5) N - Cost Payback. Project accomplishment must indicate an identifiable payback period.

(6) S - Safety. Personnel safety, Occupational Safety and Health Act (OSHA), and fire protection.

(7) T - Security. Personal, physical, and property security. Failed or failing components present a security violation, risk to personal security, or risk to property accountability.

(8) W - Welfare. Repair or replacement of components enhances morale, welfare, recreation, and quality of work life or free time.

(9) X - Communities of Excellence. Projects that support the Communities of Excellence Program. Repair or replacement of components enhances facility appearance.

(10) Y - Command Interest. The Commanding General or Chief of Staff expresses an interest in accomplishing the project.

i. Work descriptor. This code describes facility components; e.g., roofing, heating, and pavements. The code consists of two numeric digits and one alpha suffix. The assigned work descriptor influences the scoring process. See chapter 3, section IV, table 3-3 of this publication to check the work descriptor against the work being performed.

Section II
SAF Project Update

2-5. Introduction. We distribute specific guidance for developing current year SAF programs each FY. After establishing an approved SAF position, we require separate SAF updating.

2-6. SAF field update. The SAF process uses the following unique fields:

a. SAF estimated cost. We require this cost when the program code has a "S" or an "N" in the fourth position of the program code. It should only represent the contractual portion of the project's cost. (Design is complete and SIA costs will not be applicable until the next FY.)

b. Date to Purchasing and Contracting (P&C). The release date of the project to Directorate of Contracting (DOC) or to the district engineers. Report the date as a four-digit numeric, MMDD; e.g., report 27 Jul as 0727.

c. Date bid opens. Enter the design and bid solicitation date that P&C or district engineers will open bids submitted by the contractors. Date will also be in the four-digit numeric format, MMDD.

d. Type contract. Show the project as fixed price (FIX), indefinite quantity (IDQ), requirements (RQR), or job order contract (JOC).

e. Award cost. Enter the firm contractual bid value solicited. Report the costs to the nearest actual dollar.

f. TRADOC funded. This column reflects the dollar amount provided by this command. TRADOC will enter this amount as applicable.

g. Installation funded. This column reflects the dollar amount supported by the installation. Report costs to the nearest hundred dollars.

h. Remarks. This column allows visibility of project unique data such as optional/additive bid items, project packaging, associated .L/.M account costs and incidental improvement costs.

2-7. Administrative procedures.

a. TRADOC. Cdr, TRADOC will use the installations' current year unfinanced projects and the budget year program as the basis for developing the SAP program; and then generate a listing of projects by score and project status. We will code these projects as approved SAP projects and update the "TRADOC funded" field as funding becomes available.

b. DEH/DIS/DPW. Current year unfinanced projects and budget year programs should be in place no later than the first quarter update each FY. After TRADOC

develops the approved SAF programs, DEH/DIS/DPW will update SAF approved projects in the MAR system as changes occur.

Chapter 3
MAR Project Validation and Scoring

Section I
Introduction

3-1. Project validation. This is a combination of confirming, or validating, the work and scoring the project. Project validation consists of a desk review of project documentation coupled with a site visit to the facility or system. Validate projects to: ensure proper work classification: confirm justification and requirements; and verify that the proposed method of accomplishment is the most effective. Score projects to reflect their degree of need. Use scores as a management tool, especially in a constrained funding environment.

3-2. Project review. DEH/DIS/DPW personnel will periodically review and validate their own MAR projects. Review only those projects for which you have generated a DA Form 4283 (Facilities Engineering Work Request-XFA, XFB, XFC) and/or DD Form 1391 (Military Construction Project Data (LRA)) and have developed a current working estimate (CWE).

3-3. Classification of work. AR 420-10 and AR 210-50 contain the criteria governing classification of projects as maintenance and or repair. Identify and document improvements: i.e. new work, separately from MAR.

3-4. Projects requiring validation. The TRADOC validation and scoring system applies to all MAR projects with a CWE of $50,000 or more. Only MAR projects require validation.

a. For OMA, this is AMS 815794.KO Maintenance end Repair of Real Property. Validation of OMA MAR projects is further discussed in AR 420-10.

b. For AFH, this is AMS BP1920 Maintenance of Real Property Facilities. Validation of AFH MAR projects is further discussed in AR 210-50.

3-5. Projects not requiring validation.

a. Work which cannot be classified as maintenance or repair. Examples are: construction, extension, expansion, alterations, additions, improvements, incidental improvements, and new work. ARs 210-50, 415-35, and 420-10 give definitions for these terms.

b. MAR projects with a CWE less than $50,000.

c. MAR projects which are not eligible to become BMAR or DMAR IAW AR 420-16. These include:

(1) Preventive maintenance or cyclic maintenance.

(2) Repetitive maintenance normally accomplished through issuance of repetitive maintenance requirements orders or standing operations order (SOO). Examples are: leaf raking, grass cutting, pruning, applying herbicides, pesticides and fertilizer.

(3) Recurring, day-to-day maintenance work normally accomplished by service order or SOO, or done by service contract to preserve a real property facility so you may effectively use it for its designated purpose. This includes work undertaken to prevent damage to a facility which otherwise would be more costly to repair or restore. It includes work to maintain and sustain existing components. Examples are: renewal of disposable filters, calibration of equipment, caulking or painting masonry, refastening loose siding, marking pavements, cleaning storm drains, clearing power lines, maintaining elevators and sealing asphalt pavements.

(4) Maintenance and repair of real property scheduled for demolition.

d. MAR work for which you do not know the specific requirement of location and quantity far enough in advance to permit validation and which you normally perform by indefinite delivery contract. Examples are: pothole repair, floor refinishing in family housing or interior painting in family housing between occupancies. Other OMA interior or exterior painting and AFH exterior painting does require validation.

e. Emergency work which is a threat to life or property and poses a situation requiring immediate repair action. Repair of damage caused by acts of nature in which restoration is more effective than demolition. Examples are: freezing, severe wind, hail and flood.

Section II
Validation Documentation

3-6. Validation documents.

a. Required documentation. Required validation documentation consists of TRADOC Form 645-R (MAR Validation), DA Form 4283 or DD Form 1391, and CWE.

(1) TRADOC Form 645-R. Complete TRADOC Form 645-R for each project you review for validation. The project number must match the project number on DA Form 4283. The validator uses this worksheet to record desk review of documentation and project site visit field observations. This form is used as a checklist for project approval, processing and validation. The validator records the project score and any field notes.

(2) DA Form 4283. The project programming document (DA Form 4283 or DD Form 1391) defines the scope of work and states the justification. The DA Form 4283 will reflect at least approval for design. Do not validate projects not signed in either the “approved for design” block or the “approval action” block. Associated new work does not require validation; document and approve separately as required by AR 420-10.

(3) CWE. The CWE will be no more than one year old. The basis for the estimate should be an established source, such as R. S. Means or Dodge. It will provide enough cost data to show project scope and determine cost reasonableness of major job elements. The CWE will clearly show proper classification of work by identifying separately costs for MAR work (.K account), new work (.L account) and service work (.M account). MAR

validation applies to funded MAR costs only. Design cost is an unfunded cost. Exclude design costs from the validated cost estimate.

b. Optional documentation. Photographs, studies, deficiency reports, and violation notices are optional, but may enhance the justification scoring.

c. OMA MAR Validation Status Listing. Extract this listing from the MAR system to summarize input data pertinent to project validation. Review this information to be sure input is correct. This printout serves as a data entry document to make validation adjustments as required.

d. AFH MAR Validation Status Listing. Extract this listing from the MAR system to summarize input data pertinent to project validation. The major difference between 3-6(c) and 3-6(d) is that the system calculates a cost per dwelling unit (DU). All MAR projects within the 5-foot building line which exceed $15,000 per DU per FY must be sent to USAEHSC(CEHSC-FB), thru Commander, TRADOC, ATTN: ATBO-GFE, Ft Monroe, VA 23651 for approval.

3-7. Filing. Maintain originals of project validation documentation in the project folder. Permanently retain the original completed TRADOC Form 645-R in the project folder. Retain original records of previous validations.

3-8. Forms reproduction. You may locally reproduce TRADOC Form 645-R on 8-1/2 by 11 inch paper. Your installation Forms Management Officer (FMO) should print these forms. The back of this regulation includes a copy for your use.

Section III
Validation Procedures

3-9. Validation timing. Conduct MAR validations throughout the year and on-site visits whenever appropriate. (Example; look at a project under particular weather conditions.)

3-10. At the desk. Review the MAR validation documentation:

a. For completeness, accuracy and any previous validations.

b. To verify category code and work descriptor.

c. To ensure proper classification of work.

d. To review the CWE for reasonableness and ensure the proposed method of accomplishment is the most effective.

e. Look for documented justification and deterioration condition that support validation points.

f. Make notes of things you wish to check when you go to the project site.

3-11. At the project site:

a. Determine that the projects are justified and represent valid requirements.

b. Review the project DA Form 4283 or DD Form 1391 to determine that circumstances and conditions have remained unchanged as documented.

c. Determine or verify the degree of failure or deterioration.

d. Determine or verify the justification factors.

3-12. Revalidation. If a project's CWE increases by 25 percent or there is a change in scope from the previous validation, revalidate the project. Revalidation requires the following supporting documentation:

a. Project document (DA Form 4283 or DD Form 1391) showing approval of revised cost estimate.

b. Revised cost estimate.

c. Additional narrative justification.

d. Completed original TRADOC Form 645-R including validator signature and validated scope/cost. TRADOC Form 645-R is also required for revalidation.

3-13. Adverse validation. If a project receives a nonvalid rating or a low score, the director, DEH/DIS/DPW may re-evaluate the project using additional justification and explanation. Maintain the original TRADOC Form 645-R showing the adverse action in addition to the revalidation documentation in the project file.

Section IV
Project Scoring

3-14. Project scores. Assign a numeric score to a MAR project showing its degree of need. Score only MAR projects estimated at $50,000 or more. The five scoring factors are:

a. Category code of the facility (automated).

b. Work descriptor (automated).

c. Justification for MAR (confirmed by review and on-site).

d. Condition of the facility (confirmed on-site).

e. Priority assigned by the installation (automated).

3-15. Category code factor. The facility category code shows the functional use of the facility. The computer automatically assigns the category code points based on table 3-1.

3-16. Work descriptor factor. The work descriptor shows the component being repaired or replaced. Table 3-2 is a quick reference guide of major work descriptor groups. The computer automatically assigns the work descriptor points as shown in table 3-3. The work descriptor code consists of two numeric digits and one alpha suffix, for example 01A.

Table 3-1
Category Code Points

CATEGORY CODE	POINTS	FUNCTIONAL USE
111-179	9	Operational & training facilities
211-219	6	Maintenance facilities
221-229	4	Production facilities
310-321, 371, 390	0	Research facilities
411-412, 421-425, 431, 432, 441, 442, 451, 452	4	Supply facilities
510, 530, 540, 550	7	Medical facilities
610, 620, 690	4	Administrative facilities
711	10	Family housing dwellings
712-713	8	Family housing trailers & sites
714	6	Family housing detached facilities
721-724	10	Unaccompanied Personnel Housing (UPH) and dining facilies
730-760	5	Community facilities
811-813, 821-824, 826, 827, 831-833, 841-845, 871, 880, 890	8	Utilities systems and drainage
851-852	5	Roads and pavements
860, 872	3	Railroads and fencing
880-890	8	Alarm systems
900 & above	0	Real estate

Table 3-2
Work Descriptor Group Quick Reference Guide

RPMA components:

01 Roofing
02 Structure
03 Floor covering
04 Exterior finishes
05 Interior finishes
06 Heating
07 Air conditioning
08 Plumbing
09 Electrical
10 Installed building equipment
11 Utility plant equipment
12 Utility distribution
13 Pavements and collection systems
14 Railroads
15 Reserved
16 Drainage
17 Appurtenances
18 Ground Cover
19 Forest/land
20 Fish & wildlife
21 Reserved

AFH component: 22 Family housing

Table 3-3
Work Descriptor Points

01 ROOFING Reference AR 210-17, AR 420-22, AR 420-70, TM 5-610, TM 5-617, TM5-625, TM 5-801-2.
(A) Roofs (9 points).
(B) Downspouts, gutters, and flashing, but not roof trusses (4 points).
(X) Other (1 point).

02 STRUCTURE Reference AR 210-17, AR 420-22. AR 420-70, TM 5-609, TM 5-610, TM 5-615, TM 5-621, TM 5-623,
TM 5-801-2. TM 5-805-6.
(A) Foundations, dams, load bearing walls, towers, chimneys and smokestacks, porches, platforms and pool slabs, columns, beams, exterior and interior stairs, trusses, floor joists, subfloors, floor slabs (10 points).
(B) Nonload bearing walls and partitions, jambs, ceilings, doors, windows, Pool lining, interior building utility duct chases (8 points).
(C) General repair, rehabilitation and renovations (7 points).
(D) Fascia, screens, venetian blinds, and flagpoles (4 points).
(X) Other (1 point).

03 FLOOR COVERING Reference AR 420-24, AR 420-70, AR 420-81, TM 5-609,
(A) Ceramic tile, quarry tile, stair treads and nosing, conductive floors (7 points).
(B) Asphalt tile, vinyl asbestos tile, vinyl tile, rubber tile, battleship linoleum, sheet vinyl, terrazzo, wood strip, parquet flooring, carpeting and other floor covering (5 points).
(X) Other (1 point).

04 EXTERIOR FINISHES Reference AR 210-17, AR 420-70, TM 5-618, TM 5-620, TM 5-801-2. Includes glazing and caulking.
(A) Instead of painting, vinyl siding and metal siding with insulation installed, exterior insulation and surface (dryvit, etc.) siding or correction of deficiencies in the finish on exterior masonry and asbestos siding (6 points).
(B) Last painting over 10 years, or instead of painting, vinyl siding without insulation installed and metal siding without insulation installed (5 points).
(C) Last painting 4-10 years (4 points).
(D) Last painting 0-3 years (3 points).
(X) Other (1 point).

05 INTERIOR FINISHES. Reference AR 210-17, AR 420-70, TM 5-618, TM 5-620, TM 5-801-2, TM 5-807-7. Includes glazing and caulking. Instead of painting, vinyl-coated wall covering material may be used IAW AR 420-70 when durability will yield an economical finish.
(A) Last painted or covered over 10 years (3 points).
(B) Last painted or covered 6-10 years (2 points).
(C) Last painted or covered 0-5 years (1 point).
(X) Other (1 point).

06 HEATING. Reference AR 420-44, AR 420-49 TM 5-642, TM 5-643. Heating within buildings applies to distribution and emission equipment and includes -
(A) Piping and equipment insulation, fan-coil units, boilers, furnaces, heat pumps, grills, dampers, flue piping, radiators, convertors, steam coils, unit heaters, steam and condensate piping, air handling units, heating, ventilation and air conditioning (HVAC), hot water piping, blower-coil units, thermostats, heating and ventilating controls (including energy monitoring control system (EMCS)), sheetmetal or fiberglass ductwork and related distribution system components, duct insulation (8 points).
(X) Other (1 point).

NOTE: Does not include direct fired unit heaters, or any other heating source listed under K8000 in AR 37-100-XX or duct work which is a part of the structure component, such as built-in duct chases.

07 AIR CONDITIONING. Reference AR 420-54, TM 5-670, TM 5-671. Air conditioning within buildings applies to interior distribution and emission equipment and includes-
(A) Cooling coils, air handling units, fan coil units, pumps, valves, including shut-off valve inside the

Table 3-3
Work Descriptor Points (Cont)

building, chilled water piping, refrigerant piping, condensation lines, thermostats, air conditioning controls (including EMCS and FM radio systems), evaporative cooling equipment, Pipe insulation, sheetmetal or fiberglass ductwork, duct insulation (4 points).

(X) Other (1 point).

NOTE: Does not include duct work which is a part of the structure component such as built-in duct chases,

08 PLUMBING. Reference AR 420-22, AR 420-49, TM 5-610, TM 5-695. Plumbing within the 5-foot line of the building includes -

(A) Valves, traps, and hot and cold water piping (6 points).

(B) Drains, wastes, vents, faucets, lavatories, water closets, urinals, other plumbing fixtures, water heaters, controls (including EMCS and FM radio systems), hot water generators (except electrical), piping, sump pumps, showers. water filters, insulation (5 points).

(X) Other (1 point).

09 ELECTRICAL. Reference AR 420-43, TM 5-610, TM 5-682, TM 5-683. The facility electrical system begins at the point of attachment to or entry into the facility.

(A) Interior wiring, distribution equipment, lighting, lighting fixtures, main disconnect device, substation and substation components (if within the buildings), cables and wires, raceways, ducts, distribution transformers, capacitors, regulators, grounding equipment, safety switches, panels, contractors, receptacles, and all the parts and accessories necessary to distribute the electricity to the utilization equipment (9 points).

(B) Street area lighting, including regulators, poles, and fixtures (8 points).

(C) Sports lighting including poles, transformers, and wiring (used for sports lighting only). It does not include motors and controllers for installed building equipment, e.g., air conditioners, ventilators. and oil burners. Charge maintenance of these to the associated equipment. It includes electric resistance heating systems (except electric furnaces) (7 points).

(X) Other (1 point).

10 INSTALLED BUILDING EQUIPMENT (IBE) items of equipment that are affixed and built into the facility as an integral part of the facility are IBE. IBE is an integral part of the facility necessary to make the facility complete, and if removed would destroy or reduce the usefulness of the facility. Use of equipment determines if it is an integral part of the facility (AR 735-5).

(A) Fixed in place fire protection and alarm systems, EMCS and FM radio systems, fire alarms, standby generators, overhead crane runways, hospital oxygen/nitrogen valves and pipes (9 points).

(B) Conveyor belt system, elevators and escalators, hoist systems, compressed air systems, walk-in coolers (4 points).

(C) Cabinets, laboratory counters, theater appurtenances {seating, stage, etc.), and chapel appurtenances (pews, altar, etc.) (2 points).

(X) Other (1 point).

NOTE: Equipment in place (EIP) is nonexpendable equipment of a movable nature affixed to real property, you are able to remove without destroying or reducing the usefulness of the facility (AR 735-5). Account .MA000 covers maintenance of EIP. Maintenance of EIP will not be listed on MAR records; do not classify EIP as MAR. The following items are excluded from this definition: EMCS, J-SIIDS, isolation transformers installed to serve other EIP, cranes, free-standing drinking fountains and similar movable equipment.

NOTE: See AR 420-17, appendix J for additional examples of IBE and EIP.

11 UTILITY PLANT EQUIPMENT. Those items of equipment installed as an integrated part or parts of a utility plant, excluding buildings which are required to provide a commodity or service and are permanently installed. Examples of this component are equipment in an electrical generating plant, sewage treatment plant, heating plant, cooling system, water treatment, and filtration plants.

(A) Heating plant equipment. Reference AR 420-44,420-49, and TM 5-642, 5-643, 5-650, 5-651. Heating plant equipment includes all equipment permanently installed in a boiler and heating plant. Plant equipment includes: boilers, furnaces, heat recovery incinerators, feed water heaters, combustion equipment, pumps, fuel storage, valves, turbines, fans, hot water tanks, heat exchangers, integral piping, meters and controls, etc. A heating plant boiler may be in its own building or within a building having other functions (10 points).

(B) Electrical plant equipment. Reference AR 420-43. Electrical plant equipment includes all equipment permanently installed at a cogeneration or prime power generating plant, including: engine or turbine driven generators, protective devices, generator operating devices, regulators, and fuel storage facilities (10 points).

Table 3-3
Work Descriptor Points (Cont)

(C) Water plant equipment. Reference AR 420-46. Water plant equipment includes all equipment permanently installed at a cogeneration or prime power generating plant, including: pumps, motors, engines, flocculator paddles, zeolite softeners, aerators, flash mixers, trash rakes, sluice gates, plant piping and valves, cathodic protection systems (9 points).
(D) Sewage plant equipment. Reference AR 420-46 and TM 5-666. Sewage plant equipment includes all equipment permanently installed in a sewage treatment plant required to treat and process sewage. Plant equipment includes: pumps, sludge scrapers, filter distributor arms, aerators, compressors, trash rakes, sluice gates, and valves (8 points).
(E) Air conditioning and refrigeration plant equipment. Reference AR 420-54 and TM 5-670, 5-671. Air conditioning or refrigeration plant equipment includes all equipment permanently installed in a refrigeration plant or an air conditioning plant whether as individual self-contained units or built-up components and auxiliaries located within or outside of a building. Plant equipment includes centrifugal, reciprocating, rotary absorption chillers, controls, pumps, cooling towers, condensers (air or water cooled) and associated equipment (6 points).
(X) Other (1 point).

12 UTILITY DISTRIBUTION AND COLLECTION SYSTEMS. Those components required to transfer the commodity or service to/from the utility plant, which are permanently installed as a structure or component underground or above ground. These facilities are classified as distribution systems and ancillary components.
(A) Heating distribution systems. Reference AR 420-44, AR 420-49, TM 5-642, TM 5-643, TM 5-650, and TM 5-651. Heating distribution systems include steam and hot water distribution systems, and gas distribution systems. Components of the heating system include: supply and return lines, manholes, valves, traps, expansion loops, insulation, pipe supports, condensate return units, heat exchangers in buildings, and corrosion protection (9 points}.
(B) Electrical distribution systems (exterior). Reference AR 420-43. Electrical systems include overhead and underground distribution lines, switching gear, regulators, capacitors, distribution transformers, transformer substations, metering stations, poles and hardware, manholes, ducts, cables, protective devices, lightning and fault protection, and grounding systems (9 points).
(C) Water distribution systems. Reference AR 420-46, and TM 5-661. Water distribution systems components include: distribution mains, service lines, pumping plants, storage tanks, cathodic protection, reservoirs, valves, and hydrants (8 points).
(D) Sewerage systems. Reference TM-5-666. Sewage collection system components include: collection mains and laterals, manholes, pumping stations, valves, sampling and control systems (7 points).
(E) Air conditioning and refrigeration systems. Reference AR 420-54 and TMs 5-670, 5-671. Air conditioning and refrigerating distribution systems include supply and return water lines, and ancillary items from a central plant to the shut-off valve inside the buildings being sewed (5 points)
(F) Ventilating systems. Reference AR 420-54 and TM 5-745. Ventilation system components include: exhaust fans and hoods, air handling units, power, gravity and unit ventilators, and roof vents (5 points).
(G) Pneumatic systems. Includes compressors, piping and controls (5 points).
(H) Hydraulic systems. Includes pumps, tanks, lines, and controls (5 points).
(X) Other (1 point).

13 PAVEMENTS. Reference AR 420-72, TM 5-623. Pavement area refers to all graded, surfaced, paved, or stabilized (other than grass) areas used for vehicular, aircraft, or pedestrian traffic such as -
(A) Roads, streets, service drives, shoulders, pavement markings, walks, parking areas (8 points).
(B) Airfield paved areas, heliport pavements, parking aprons (7 points).
(C) Open storage pavements, paved parade grounds and drill fields (6 points).
(X) Other (1 point).

NOTE: You must support use of overlays instead of milling and overlayment or other pavement rehabilitation by life cycle cost analysis.

14 RAILROADS (RR). Reference AR 420-76, TM 5-627, and TM 5-632.
(A) RR grade crossings, RR loading docks (9 points).
(B) Roadbed, rails, ballast, tie plates, joint bars, spikes, anchors, gage rods, guard rails, frogs, switch stands, bolts, nuts, washers, and other, less ties (6 points).
(C) Includes only the RR ties (6 points).
(X) Other (1 point).

15 Reserved for future use.

16 DRAINAGE. Drainage is a component of roads, airfields, hardstands, railroads, improved grounds and other grounds, and as such it includes -

Table 3-3
Work Descriptor Points (Cont)

(A) Ditches, channels of ail types, culvert, storm sewer pipes, inlets to culverts and storm sewers, manholes, erosion control, and other. Other structures associated with drainage systems such as headwalls are appurtenances (5 points).
(X) Other (1 point).

17 APPURTENANCES. Appurtenances encompass -
(A) Retaining walls, bulkheads, bridge substructures, sirens, traffic signals and signs (10 points).
(B) Curbs and gutters, guardrails, security fences, traffic islands, and headwalls (9 points).
(C) Installed irrigation equipment, grounds sprinklers, washracks, and underground tanks (7 points).
(D) Athletic and recreational appurtenances: outdoor athletic fields, recreational courts and play - ing surfaces other than pavements, goals and goalposts, backstops, basketball hoops, back- boards, sand traps, permanently installed bleachers and benches (3 points).
(E) Bunkers, berms, tree wells, farm fencing, information signs, and cattleguards (2 points).
(X) Other (1 point).

NOTE: BRIDGES. Reference AR 420-72, TM 5-624, and TM 5-627. Bridges are also included under appurtenances. All types of grade separations are classed as bridges. A bridge is any structure 20 or more feet in length erect- ed over a depression or an obstacle and carrying a roadway for pedestrians, vehicles, or railway equipment. Structures less than 20 feet long are not required to be listed as real property facilities.

18 GROUND COVER. Reference AR 420-74, TM 5-629, TM 5-630, and TM 5-631. Vegetation ground cover includes areas such as -
(A) Antenna fields, and areas around underground oil/fuel storage tanks, and ammunition maga- zines (6 points).
(B) Lawns, cemeteries, unimproved grounds, other crushed rock surfaces and all other grounds, except forest lands, grounds continuous to buildings, fish and wildlife habitats (2 points).
(X) Other (1 point).

19 FOREST LAND. Reference AR 420-74, chapter 8. This component includes those areas reportable on DA Form 2785-1-R (installation Natural Resources Report: Part n-Fish and Wildlife Management (LRA)). This definition is to include-
(A) Herbicide applications, planting and plant removal operations and similar items (2 points).
(X) Other (1 point).

20 FISH AND WILDLIFE HABITATS. Reference AR 420-74, chapter 8. This component includes those areas reportable on DA Form 2785-2-R. This definition is to include -
(A) Pest control, endangered species protection, and similar items (2 points).
(X) Other (1 point).

21 Reserved for future use.

22 FAMILY HOUSING. Reference AR 210-50. Family housing components include -
(A) Structural shell (roofs, foundations, framing for walls, ceilings and floors) (10 points).
(B) Heating plants, furnaces, water heaters, insulation, and chimneys (9 points).
(C) General repairs, utility lines (sewage, water, gas, electric), utility poles, bathrooms, and oil tanks {8 points).
(D) Windows, doors, walls, ceilings, and floors (7 points).
(E) Specialty items (dishwashers, cabinets, sinks, countertops, plumbing fixtures, gutters, down- spouts, smoke detectors, range hoods, and fire suppression systems) (6 points).
(F) Air conditioning units (6 points).
(G) Exterior finishes (exterior painting, gutters, and downspouts) (6 points).
(H) Other property associated with specific dwelling units (privacy fences, storage buildings, patios, clothes line poles, and equipment enclosures) (6 points).
(I) Other property: roads, sidewalks, curbs, driveways, grounds, playgrounds, landscaping, and boundary fencing. (5 points).
(J) Interior finishes (interior paint, other finishes and floor refinishing). You may use vinyl-coated wall covering material only in bathrooms. (3 points).
(X) Other (1 point).

3-17. Justification factor.

The justification code indicates the reason for project accomplishment. The validator will assign points when the documentation and site verification shows one or more of the justification factors listed in table 3-4. Use sound technical judgment to select appropriate justification codes. Then refer to table 3-5 through 3-14 as listed on table 3-4 to determine allowable points. The validator may use one or two factors. The first justification code entered into the computer is the primary factor and reflects the project type. Paragraph 2-4h gives more explanation of project type. The second code is the secondary factor. The justification factor code consists of an alpha character followed by a single-digit number.

Example 1: A project to repair the failing electrical system in a maintenance shop will correct safety hazards, bring the electrical system up to current code, and eliminate the impairment to productivity. The work descriptor is 09A. The risk assessment code is IIC. The Installation Commander has expressed interest in this project. The validator may chose not more than two justification factors. The validator reviews the justification tables and selects 8 points for safety (code S8) and 8 points for mission impact (code .M8).

Example 2: A project to replace failing single-pane, metal casement windows in a barracks with insulated, double-pane, vinyl-clad windows will save energy, make the soldiers more comfortable, improve the aesthetic appearance of the barracks, and have a cost payback of 10
years. The work descriptor is 02B. The validator may chose not more than two justification factors. The validator reviews the justification tables and selects 7 points for
quality of life (code W7) and 5 points for energy conservation (code E5).

Table 3-4
Justification Factor Points

Abbreviation Code	Justification Factor	Point Range
H	Health	Table 3-5
S	Safety and OSHA	Table 3-6
W	Welfare, morale, recreation, and quality of life	Table 3-7
Y	Command interest	Table 3-8
M	Mission/readiness	Table 3-9
I	Environmental Compliance Achievement Program (ECAP)	Table 3-10
N	Cost payback	Table 3-11
T	Security: personal and physical	Table 3-12
X	Communities of Excellence	Table 3-13
E	Energy conservation	Table 3-14

Table 3-5
Justification factor - Health

	Accident Probability				
	A	B	C	D	E
Hazard Severity	Pts/code	Pts/code	Pts/code	Pts/code	Pts/code
I	10 H0	10 H0	8 H8	6 H6	4 H4
II	9 H9	9 H9	8 H8	6 H3	3 H3
III	7 H7	7 H7	6 H6	4 H4	2 H2
IV	5 H5	4 H4	3 H3	2 H2	2 H2

Note: This table is based on health hazard risk assessment. Hazards will be risk assessed in terms of hazard severity and accident probability in accordance with AR 385-10. Risk assessments are recorded on DA Form 4754, (Violation Inventory Log). A copy of the completed DA Form 4754 will be maintained in the project folder to support justification points assigned using this table.

Table 3-6
Justification factor - Safety and OSHA

	Accident Probability				
	A	B	C	D	E
	Pts/code	Pts/code	Pts/code	Pts/code	Pts/code
Hazard Severity					
I	10 S0	10 S0	8 S8	6 S6	4 S4
II	9 S9	9 S9	8 S8	6 S6	3 S3
III	7 S7	7 S7	6 S6	4 S4	2 S2
IV	5 S5	4 S4	3 S3	2 S2	2 S2

Note: This table is based on safety hazard risk assessment. Hazards will be risk assessed in terms of hazard severity and accident probability in accordance with AR 385-10. Risk assessments are recorded on DA Form 4754. A copy of the completed DA Form 4754 will be maintained in the project folder to support justification points assigned using this table.

Table 3-7

Justification Factor - Welfare, Morale, Recreation, and Quality of Life

Personnel benefited	Points/Code	
Benefits 100 or more soldiers	7	W7
Benefits 100 or more soldiers or their dependents or civilians	6	W6
Benefits 50 to 99 soldiers or their dependents or civilians	5	W5
Benefits 30 to 49 soldiers or their dependents or civilians	4	W4
Benefits 15 to 29 soldiers or their dependents or civilians	3	W3
Benefits 5 to 14 soldiers or their dependents or civilians	2	W2
Benefits less than 5 soldiers or their dependents or civilians	1	W1

Table 3-8
Justification Factor - Mission/Readiness

Degree of mission impact	Points/Code	
Major impact		
Cannot perform mission	10	M0
Severely hampered	9	M9
	8	M8
Some impact		
Delayed performance/output	7	M7
Reduced performance/output	6	M6
	5	M5
Minor impact.....	4	M4
	3	M3
	2	M2
	1	M1

Table 3-9
Justification Factor - Command Interest

Level of Command Interest	Points/Code	
Commanding General (CG) desires project execution within 1 year	6	Y6
CG desires project execution	5	Y5
	4	Y4
	3	Y3
	2	Y2
	1	Y1

Table 3-10
Justification Factor - ECAP

Type of project	Points/Code	
Federal Facility Compliance Agreements (FFCA).....	10	10
Consent orders and other compliance agreements.....	9	19
Notice of Violation (NOV).....	8	18
Regulatory deadline passed.....	7	17
Audit/inspection deficiency.....	6	16
Regulatory deadline pending.....	5	15
Obsolete facilities.....	4	14
	3	13
	2	12
	1	11

Note: This is a secondary justification factor only. If the performed work is primarily environmental, do not include project in the MAR system. Identify the requirement through environmental channels. ECAP includes: waste water, drinking water supply, air and noise pollution abatement (including asbestos and radon), poly-storage tanks, solid waste management, hazardous chlorinated biphenyl (PCB) management, underground waste management, historical and archaeological resources, National Environmental Policy Act (NEPA), natural resources conservation.

Table 3-11
Justification Factor - Cost Payback

Cost payback		Points/Code	
Period in years	0-1	10	N0
	1-2	9	N9
	2-3	8	N8
	3-4	7	N7
	4-5	6	N6
	5-6	5	N5
	6-8	4	N4
	8-10	3	N3
	10-15	2	N2
	15	1	N1

Table 3-12
Justification Factor - Security: Personal and Physical

Type of security	Points/Code	
Personal security.....	10	T0
	9	T9
	8	T8
Government property.....	7	T7
	6	T6
	5	T5
Personal property.....	4	T4
	3	T3
	2	T2
	1	T1

Table 3-13
Justification Factor - Communities of Excellence

The validator may use these factors when the Project justification shows that enhancing appearance will help achieve community excellence. The validator can use only one factor even if two or more apply.

	RPMA			AFH		
Project Description	Work Descriptor	Points/Code		Work Descriptor	Points/Code	
Building interiors & 03A, 03B	02A thru 02D	5	X5	22D & 22G	5	X5
Building exteriors*	04A thru 04D	5	X5	22A & 22G	5	X5
Main entrances	None	4	X4			
Signage	17A	4	X4			
Landscaping	18C	4	X4	22I	4	X4
Housing area playgrounds and sidewalks	22I	4	X4			
Exterior utilities (relocate or conceal)	12A thru 12C	3	X3	22C	3	X3
Community parks	18B	3	X3			

*You must support use of siding or outsulation (exterior insulation system) by life cycle cost analysis.

Table 3-14
Justification Factor - Energy Conservation

The validator may use these factors when the project description and work descriptor match the table and satisfy the conditions of the notes. The validator selects only one energy justification factor from this table.

PROJECT DESCRIPTION	Work OMA	Descriptor AFH	Notes*	Points/Code
Replace (RPL) boilers and furnaces	06A, 11A	22B	4,5,7	10 E0
Repair (RPR) energy distribution systems	12A, 12E	22C	5, 8	9 E9
RPL building HVAC controls	06A, 07A			8 E8
RPL exterior or interior lighting	09A thru 09C	22C		8 E8
RPL air conditioning, refrigeration & chillers	07A, 11E	22F	6, 9	7 E7
RPL motors	06 thru 12			6 E6
Insulation	01A, 02A 02B, 04A	22A 22D	5	6 E6
RPL windows	02B, 02C	22D		5 E5
RPR electric distribution system	12B	22C		5 E5

*NOTES: Notes one thru three apply to all items.

1. Assign energy conservation points only if repaired or replaced equipment improves efficiency.

2. Assign points only if replacement equipment meets or exceeds the minimum energy efficiency standards in TRADOC Reg 420-11.

3. Includes repair by replacement of failed/failing components, systems with higher efficiency state-of-the-art components, or systems of similar capacities. Examples: replacement of pneumatic controls with Direct Digit Controls (DDC) in a building HVAC control system or replacement of incandescent lighting with fluorescent lighting.

4. Includes repair by replacement of a failed/failing boiler or furnace by converting to one that uses a different or multiple fuels.

5. Includes repair by adding insulation incidental to repair where no insulation exists when done in conjunction with:

a. Exterior residing.

b. Replacement of failed/failing building wall liners, ceilings, or roofs.

c. Replacement of failed/failing distribution system piping or boilers.

Assign points only if insulation "U Values" meet or exceed the minimum values in TRADOC Regulation 420-11.

6. If chiller or A/C repair project involves conversion to a low ozone depletion potential refrigerant, you may add the 6 points for environmental as the secondary justification factor. When project scope involves conversion of a refrigerant, indicate on the DA Form 4283.

7. Includes central energy plant equipment, individual building boilers, and furnaces.

8. Includes repair/replacement of leaking pipes, deteriorated insulation, or other improvements in equipment and system energy efficiency. Includes steam, high temperature hot water (HTHW), hot water/chillwater distribution systems, and condensate/hot water return systems.

9. Includes repair by replacement of a multiplicity of failed/failing A/C units with a central A/C system of same total cooling capacity.

3-18. Condition factor.
The condition code indicates the degree of facility component deterioration if the proposed work is not done within the next year. The validator assigns condition code points based on good judgment during site inspection. Table 3-15 shows condition codes.

3-19. Installation priority factor.
The installation assigns the project priority. The computer automatically calculates priority points using a logarithmic (LOG) formula. The formula emphasizes higher priority projects. The change in project priorities changes project scores. Table 3-16 is a list of priority points compared to the associated installation priority.

Table 3-15
Condition Codes

Condition Code	Points	Types of Failure
A	10	Failure - Equipment or facility cannot be used for its intended purpose. For asbestos containing materials, there is imminent potential to release hazardous fibers; i.e., a high risk assessment.
B	8	Failure imminent; advanced stage of deterioration; requires frequent repairs.
C	6	System functional, but deterioration will progress if you do not do the project. For asbestos containing materials, there is a medium risk assessment.
D	4	Little deterioration at present time, but project work still considered essential (other wise project not valid).

Table 3-16
Installation Priority Points

Logarithmic formula: $X = \frac{10}{1 + \text{Log (I)}}$ where: X = points, 1 = installation priority

I	X	I	X	I	X
1	10.000	56	3.638	111	3.283
2	7.686	57	3.628	112	3.279
3	6.769	58	3.618	113	3.275
4	6.241	59	3.609	114	3.271
5	5.885	60	3.599	115	3.267
6	5.623	61	3.590	116	3.263
7	5.419	62	3.581	117	3.259
8	5.254	63	3.572	118	3.255
9	5.117	64	3.563	119	3.251
10	5.000	65	3.555	120	3.247
11	4.898	66	3.546	121	3.243
12	4.809	67	3.538	122	3.240
13	4.730	68	3.530	123	3.236
14	4.659	69	3.522	124	3.232
15	4.595	70	3.514	125	3.229
16	4.536	71	3.507	126	3.225
17	4.483	72	3.499	127	3’221
18	4.434	73	3.492	128	3.218
19	4.388	74	3.485	129	3.214
20	4.345	75	3.478	130	3.211
21	4.306	76	3.471	131	3.207
22	4.269	77	3.464	132	3.204
23	4.234	78	3.457	133	3.201
24	4.201	79	3.451	134	3.197
25	4.170	80	3.444	135	3.194
26	4.140	81	3.438	136	3.191
27	4.112	82	3.431	137	3.188
28	4.086	83	3.425	138	3.184
29	4.061	84	3.419	139	3.181
30	4.036	85	3.413	140	3.178
31	4.013	86	3.407	141	3.175
32	3.991	87	3.401	142	3.172
33	3.970	88	3.396	143	3.169
34	3.950	89	3.390	144	3.166
35	3.930	90	3.384	145	3.163
36	3.911	91	3.379	146	3.160
37	3.893	92	3.374	147	3.157
38	3.876	93	3.368	148	3.154
39	3.859	94	3.363	149	3.151
40	3.843	95	3.358	150	3.149
41	3.827	96	3.353		
42	3.812	97	3.348		
43	3.797	98	3.343		
44	3.782	99	3.338		
45	3.769	100	3.333		
46	3.755	101	3.328		
47	3.742	102	3.323		
48	3.729	103	3.319		
49	3.717	104	3.314		
50	3.705	105	3.309		
51	3.693	106	3.305		
52	3.681	107	3.301		
53	3.670	108	3.296		
54	3.659	109	3.292		
55	3.649	110	3.287		

For projects with all scores entered except the installation priority (I), the computer assigns priority as 800, which yields X = 2.562. This prevents zero priority points for validated pro jects without priorities, and allows the computer to calculate a project score.

Appendix A
References

a. Required Publications.

AR 37-100-XX	Army Management Structure (AMS)
AR 210-13	General/Flag Officer's Quarters (GFOQ) Installation Commander's Quarters (ICQ) Management
AR 210-17	Inactivation of Installation
AR 210-50	Housing Management
AR 385-10	Army Safety Program
AR 415-28	DA Facility Classes and Construction Categories (Category Codes).
AR 415-35	Minor Construction
AR 420-10	Management of Installation Directorates of Engineering and Housing.
AR 420-16	Facilities Engineering Reports
AR 420-17	Real Property and Resource Management
AR 420-22	Preventive Maintenance and Self-Help Programs
AR 420-43	Electrical Services
AR 420-46	Water and Sewage
AR 420-49	Heating, Energy Selection and Fuel Storage, Distribution and Dispensing Systems
AR 420-54	Air Conditioning and Refrigeration
AR 420-70	Buildings and Structures
AR 420-72	Surfaced Areas, Bridges, Railroad Track and Associated Appurtenances
AR 420-74	Natural Resources: Land, Forest and Wildlife Management
AR 420-76	Pest Management

TRADOC Maintenance and Repair (MAR) Project Management and Priority System End User's Manual.

b. Related publications.

AR 37-115	Accounting for Special Facilities Engineering Projects.
AR 420-81	Custodial Services
AR 735-5	Policies and Procedures for Property Accountability
DA Pamphlet 420-6	Facilities Engineering Management Handbook with change 1
DA PAM 420-8	Facilities Engineering Management Handbook.
DA Form 4754	Violation Inventory Log
TRADOC Reg 11-4	Installation Contract System (RCS ATRM-94).
TRADOC Reg 420-11	Energy and Utility Systems Management (ATEN), Change 1.
TRADOC Form	MAR Validation 645-R
TM 5-609	Military Custodial Manual
TM 5-610	Preventive Maintenance: Facilities Engineering, Buildings and Structures
TM 5-615	Repairs and Utilities: Concrete and Masonry
TM 5-617	Facilities Engineering: Maintenance and Repair of Roofs
TM 5-618	Paints and Protective Coatings
TM 5-620	Maintenance and Repair of Architectural and Structural Elements of Buildings and Structures
TM 5-621	Repairs and Utilities: Buildings and Structures; Lathing and Plastering
TM 5-623	Pavement Maintenance Management
TM 5-624	Maintenance and Repair of Surface Areas
TM 5-625	Repairs and Utilities: Sheet Metal
TM 5-627	Maintenance of Trackage
TM 5-629	Weed Control and Plant Growth Regulation
TM 5-630	Natural Resources - Land Management
TM 5-631	Natural Resources - Forest Management
TM 5-632	Military Entomology Operational Handbook
TM 5-642	Operator and Maintenance,

	Small Heating Systems
TM 5-643	Repairs and Utilities: Preventive Maintenance for Heating Plants and Systems
TM 5-650	Repairs and Utilities: Central Boiler Plants
TM 5-651	Central Boiler Plants, Inspection and Preventive Maintenance Services
TM 5-661	
TM 5-670	Repairs and Utilities: Refrigeration Air Conditioning, Mechanical Ventilation and Evaporative Cooling
TM 5-671	Repairs and Utilities: Preventive Maintenance for Refrigeration, Air Conditioning, Mechanical Ventilation and Evaporative Cooling
TM 5-682	Facilities Engineering: Electrical Facilities Safety
TM 5-683	Facilities Engineering: Electrical Interior Facilities
TM 5-695	Maintenance of Fire Protection Systems
TM 5-745	Heating, Ventilating, Air Conditioning and Sheet Metal Work
TM 5-801-2	Historic Preservation: Maintenance Procedures
TM 5-805-6	Caulking and Sealing

Glossary

Section I
Abbreviations

AE ..... architect engineer
AFH ..... Army Family Housing
AFHC ..... Army Family Housing Construction
AMS ..... Army Management Structure
ARR ..... annual Recurring Requirements
ARRMAR ..... Annual Recurring Requirement for Maintenance and Repair
AWP ..... annual work plan
BMAR ..... Backlogged Maintenance and Repair
CFY ..... Current fiscal year
CG ..... Commanding General
COB ..... command operating budget
COO ..... cost of ownership
COOMAR ..... cost of ownership for maintenance and repair
CWE ..... current working estimate
CY ..... current year
DA ..... Department of Army
DBA ..... data base administrator
DCSBOS ..... Deputy Chief of Staff, Base Operations Support
DDC ..... direct digit controls
DEH ..... Directorate of Engineering and Housing
DIS ..... Directorate of Installation Support
DMAR ..... Deferred Maintenance and Repair
DOC ..... Directorate of Contracting
DPW ..... Directorate of Public Works
DU ..... dwelling units
ECAP ..... Environmental Compliance Achievement Program
EIP ..... equipment-in-place
EMCS ..... Energy Monitoring and Control System
Equip ..... equipment
FFCA ..... Federal Facility Compliance Agreements
FIX ..... fixed price
FM ..... frequency modulation
FMO ..... Forms Management Officer
FY ..... fiscal year
HQ ..... headquarters
HQDA ..... Headquarters, Department of the Army
HTHW ..... high temperature hot water
IAW ..... in accordance with
IBE ..... Installed Building Equipment
IDQ ..... indefinite quantities
IFS ..... integrated facilities system
JOC ..... Job Order Contract
J-SIIDS ..... Joint Security Instruction Detection System
MAR ..... Maintenance and Repair
MCA ..... Military Construction, Army
MCAR ..... Military Construction, Army Reserve
MMDD ..... month/day (e.g. 0325)
NAF ..... Nonappropriated Fund(s)
NEPA ..... National Environmental Policy Act
NOV ..... Notice of Violation
NR ..... not required
NV ..... not valid
OENGR ..... Office of the Engineer
Oth ..... Other
OMA ..... Operations and Maintenance, Army
OMARNG ..... Operations and Maintenance, Army National Guard
OMAR ..... Operations and Maintenance, Army Reserve
OSHA ..... Occupational Safety and Health Act
P&C ..... Purchasing and Contracting
PAX ..... Programming, Administration and Execution System
PCB ..... polychlorinated biphenyl
POC ..... point of contact
RDT&E ..... Research, Development Testing and Evaluation
RPMA ..... Real Property Maintenance Activities
RPL ..... replace
RPR ..... repair
RQR ..... requirements contract

RR ..... railroad
SAP ..... subject to availability of funds
SF ..... square foot
SIA ..... Supervision, inspection, and admin-
..... istration
SOO ..... Standing operating order
Spt ..... Support
TM ..... technical manual
TRADOC ..... U.S. Army Training and Doctrine
..... Command
UPH ..... unaccompanied personnel housing
URR ..... Unconstrained Requirements Report
USAEHSC ..... U.S. Army Engineering and Housing
..... Support Center
WWII ..... World War II
YYMM ..... YearMonth

Section II
TERMS

ARRMAR/COOMAR

Defined as the funding requirement for maintenance and minor repair work for OMA and AFH, respectively, which is required annually in order to maintain facilities at a level which minimizes the future need for major repairs and allows facilities to be used for their designated purpose. ARRMAR/COOMAR must be totally documented in the annual work plan (AWP) for in-house or contract performance.

Annual work plan (AWP)

The AWP is a single year plan documenting engineer mission requirements, both financed and unfinanced, for the upcoming fiscal year.

BMAR/DMAR

Unfinanced ARRMAR/COOMAR remaining on the AWP as a firm requirement at FY end (30 Sep). It is work which was not accomplished during the FY. For purposes here, consider as accomplished those projects which have funds obligated towards contracts and jobs completed by civilian in-house personnel or started by military labor. Scheduled maintenance requirements repeated at long intervals (years rather than months) unfinanced at the end of the FY qualify as BMAR. AR 420-16 lists the categories of work not eligible for BMAR/DMAR, which include:

a. Preventive maintenance.

b. Recurring work requirements such as filter changes, cleaning storm drains, or work done by service contract such as elevator maintenance and floor sanding.

c. Alteration and minor construction (OMA .L account)

d. Incidental improvements (AFH).

Execution plan

A list of MAR projects valued at $10,000 or above that are programmed for execution, regardless of method of accomplishment, from within the installation's annual funding program, Identify these projects in the funded potion of an installation's AWP.

Incidental improvements

Alterations, additions, expansions, and extensions to the existing AFH real property. They do not qualify as potential DMAR.

Maintenance

Work required to preserve and maintain a real property facility such that it maybe effectively used for its designated functional purpose. Maintenance includes work done to prevent damage which would be more costly to restore than prevent. Maintenance also includes work to sustain components such as the renewal of disposable filters, painting, caulking, refastening loose siding, and sealing asphalt pavements.

Potential BMAR/DMAR

ARRMAR/COOMAR projects that meet the requirements for BMAR/DMAR and are fully documented in the AWP as a requirement for a given year but not funded or for other reasons cannot be accomplished during the FY are potential BMAR/DMAR. At the end of the FY, the system automatically converts all calendar year (CY) "potential" ARRMAR/COOMAR projects to BMAR/DMAR, respectively.

Project files/Project folders

Files will include all documents and data impacting on the project, from project inception to completion/deletion. A project file must contain sufficient information to identify the scope of the project, adequate justification data to support the essentiality or need, a signed and dated cost estimate, and a work authorization document (DA Form 4283 or DD Form 1391). The cost estimate will be in sufficient detail to identify the work to be done commensurate with the percent of design completion. Initially, a desk estimate will suffice. The estimate is based on the best information available at the time of project formulation. Costs should be taken from a nationally recognized estimating guide such as Means or Dodge. Lump sum estimates are not acceptable. Quantities of materials will be shown as follows: square feet of roofing or painting, linear feet of pipe replacement, or square yards of paving. The project's CWE will include contractual amount; contingencies; and supervision, inspection and administration (SIA).

Project scope

A single integrated undertaking which, in good engi-

neering judgment, should be accomplished at a single point in time. Combine into one project, several work elements required simultaneously. Separate projects may be established if work elements are not dependent on one another.

Repair

The restoration of a failed/failing real property facility or component) to a condition that allows effective use for its designated functional purpose. Repair can be:

a. Overhaul, reprocessing, or replacement of deteriorated components or materials.

b. Correction of deficiencies in failed/failing components of existing facilities or systems to meet current Army standards and codes where such work, for reasons of economy, should be done concurrently with restoration of failed or failing components. Correctively work may involve incidental increases in quantities or capacities.

c. Major work that restores a generally deteriorated facility to a condition that effectively utilizes the facility for its designated purpose. This undertaking may include relocation or reconfiguration of building components such as partitions, windows and doors, etc., if incidental to repair or replacement. In case of failed/failing systems, such an undertaking may also incorporate additional components to permit the efficient and safe use of the replacement system. Repair does not include increases in quantities of components for functional reasons nor extension of utilities or protective systems to areas not previously served. An increase in quantities of components for functional reasons, areas served by utilities, protective systems, or exterior building dimensions, is construction.

d. Complete replacement of a real property facility is construction, not repair.

Replacement cost

The replacement cost is derived IAW AR 420-17 for a facility of the same size and category. The DD Form 1391 Processor System Newsletter #19, found in the Programming, Administration and Execution (PAX) System, gives current unit cost values by facility category code to use when calculating facility replacement. When comparing project coat with replacement cost, all concurrent costs (maintenance, repair, and improvements) must be included.

Revalidation

Revalidation is needed when the work scope changes or the estimated cost of a project increases by 25 percent or more over the last validated amount.

SIA/contingencies

Include all costs associated with SIA and contingencies in a project's estimated cost. In addition, SIA can be carried over to the next FY if the amount is substantial ($50,000 or more) and the installation would like to maintain visibility. Do not code SIA cost remaining on the MAR listing once the project has been awarded as potential BMAR/DMLAR or for execution. Review these costs periodically for validity and adjust accordingly.

SAF

A TRADOC program established to effectively utilize yearend migratory resources. Established procedures apply to both OMA and AFH and are limited to maintenance and repair projects having a high priority for execution.

TRADOC score

A numeric objective measurement assigned to a project after validation which indicates the degree of need for MAR project accomplishment. It should be used to prioritize design, program the execution of projects, and determine the suitability for migratory funding. Projects with a score below 25,000 should not be executed.

Validation

An assessment of scope, cost, condition, and essentiality of work required. A physical on-site inspection of a MAR project by a validator to ensure compliance with applicable regulations; verify the need, degree of urgency, scope, condition, and reasonableness of cost estimate for the proposed work. It neither constitutes administrative project approval nor provides relief from compliance with required Army or TRADOC regulations.

Validated amount

The coat of the required maintenance and repair based on the most recent CWE.

FOR THE COMMANDER:

OFFICIAL: HENRY M. HAGWOOD, JR.
Major General, GS
Chief of Staff

DAVID G. FITZ-ENZ
Colonel, GS
Deputy Chief of Staff for
Information Management

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Cdr, FORSCOM
ATTN: FCEN-TSF

MAINTENANCE AND REPAIR (MAR) VALIDATION

(TRADOC REG 420-3)
(PLEASE READ INSTRUCTIONS ON REVERSE SIDE)

1. Installation	2. Project Number	3a. Current Working Estimate (M&R costs only) $	3b. CWE Date

4. Project Description ☐ OMA ☐ AFH

5. Type Construction (OMA)	6. Type Quarters (AFH)
☐ Perm ☐ Semi-Perm ☐ Temp ☐ WWII	☐ Adequate ☐ Substandard

7. Approval Level Checks:

a. OMA

Replacement Cost	# of Square Feet	Cost per Square Foot (CWE/SF)	.L Costs	.M Costs

Project CWE+L+M > $300K & CWE + .L > 50% replacement Cost	☐ yes ☐ no
Project .K costs exceed $1M	☐ yes ☐ no
Project .L costs exceed $300K	☐ yes ☐ no
WWII bldg CWE exceeds $20/SF	☐ yes ☐ no

b. AFH

# of Dwelling Units	Cost per Dwelling Unit (CWE / #DU)

Project exceeds $15K/DU	☐ yes ☐ no
Project exceeds $1M	☐ yes ☐ no

("Yes" on any question requires a DD Form 1391 for higher approval)

8. Checklist

_____ Previously Validated	_____ Life cycle cost required	☐ yes	☐ no
_____ Complete DA Form 4283	_____ Life cycle cost completed	☐ yes	☐ no
_____ Complete CWE	_____ DD Form 1391 required	☐ yes	☐ no

9. Notes & Remarks:

10. VALIDATION:

Classification: Project work classification is OK?	☐ yes ☐ no
Scope: Project represents valid requirements?	☐ yes ☐ no
Project document (DA Form 4283 or DD Form 1391) sufficiently describes justification for scope of work?	☐ yes ☐ no
Effectiveness: Proposed solution is effective?	☐ yes ☐ no
Proposed solution is economical?	☐ yes ☐ no

11. Project Justification:

12. SCORING:

a. Amount Validated $

CODE / POINTS	b. Category Code	c. Work Descriptor	d. Justification 1. 2.	e. Condition	f. Base Score

g. AMS Code | h. FE Code ☐ IN ☐ IY ☐ HN ☐ HY

13. Validator Name	Validator Signature	Date

14. I have reviewed and concur with the validation and scoring.

DEH Name | DEH Signature | Date

INSTRUCTIONS FOR COMPLETING TRADOC FORM 645-R

1. Enter installation name.
2. Enter 9-character project number, e.g. FE024987P. Use document number from DA 4283 work request.

3a. Enter the sum of the estimated cost, SIA & contingencies as supported by documentation in the project file. DO NOT INCLUDE DESIGN COSTS!

3b. Enter date of Current Working Estimate. If the CWE is more that 1-year old, update it.

4. Enter brief description and scope of work. Begin each entry with project title, e.g. Repair Roof, Bks 8-4.
5. Mark appropriate type of construction.
6. Mark appropriate type of Quarters for AFH.
7. Approval level checks - If any of the 5 questions in this section is "yes" then FE code will be HN or HY, indicating higher HQ action.
   a. OMA - Ref AR 420-10, Management of Installation Directorates of Engineering & Housing, for approval levels.
      (1) Enter the replacement cost of the facility, including any square feet being added as a result of .L work.
      (2) Square footage of the facility involved including any SF being added.
      (3) Cost per square foot: Current Working Estimate, shown in 3a, divided by the square feet of the facility equals cost per square foot.
      (4) Mark "yes" or "no" as appropriate to the 4 questions.
   b. AFH - Ref AR 210-50 for approval levels.
      (1) Number of dwelling units in the project.
      (2) Cost per dwelling unit: 3a - current working estimate divided by number of dwelling units.
      (3) Check "yes" or "no", as appropriate to the 2 questions.
8. Check the appropriate statements as applicable. You may enter dates or check marks.
9. For use in the field. The validator can take notes in this section on what is seen pertaining to the project. Notes generally include facility condition and additional justification information which will be used to support validation and scoring decisions.
10. Check as appropriate. Make judgement decisions based on the project file and on-site inspection. Comment about reasons for "no" checks in Block 9, Remarks.
11. Write a concise 1 or 2 sentence project justification, beginning with the proper action words. Include quantities, condition and descriptive adjectives, e.g. Repair 14 bent, warped, single-pane metal casement windows which allow air infiltration and heat loss. Windows are original 40-year old construction.
12. Scoring
    a. Enter amount validated of .K account in thousands of dollars, e.g. $103,000. The basis for amount validated is your professional judgment and knowledge about the requirements, scope, and estimating.
    b. Enter the facility 5-digit category code as listed in real property records. An explanation of facility catcode are in AR 415-28. TRADOC Reg 420-3, table 3-1 lists category points.
    c. The component being repaired or replaced. TRADOC Reg 420-3, table 3-3 lists work descriptors and points.
    d. The reason for project accomplishment. TRADOC Reg 420-3, Chapter 2, shows definitions of Type Project, and table 3-5 through 3-14 shows justifications and points.
    e. Degree of deterioration of the facility component if the work is not accomplished within the next year. TRADOC Reg 420-3, table 3-15 shows condition code and points.
    f. Point total of the above 4 factors, b + c + d + e = f.
    g. See TRADOC Reg 420-3, table 2-2 for AMS codes.
    h. Check appropriate FE code: IN - Installation has approval authority, DA Form 4283 not yet approved. IY - Installation has approval authority, DA Form 4283 is approved. HN - MACOM or DA approval required, DD Form 1391 not yet approved. HY - MACOM or DA approval required, DD Form 1391 approved.
13. Print or type validators name. Validator sign and date.
14. Print or type DEH/DIS/DPW name. DEH/DIS/DPW sign and date.

File completed form in the project folder.